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**Substitute for form 1449A/PTO**

## **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 1 of 2

**Complete if Known**

<b>Application Number</b>	09/805,455
<b>Filing Date</b>	March 14, 2001
<b>First Named Inventor</b>	Weiniu GAN et al.
<b>Art Unit</b>	1634
<b>Examiner Name</b>	J. Fredman
<b>Attorney Docket Number</b>	CI-001165

Examiner Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

**Burden Hour Statement:** This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

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Substitute for form 1449B/PTO

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 2 of 2

**Complete if Known**

<b>Application Number</b>	09/805,455
<b>Filing Date</b>	March 14, 2001
<b>First Named Inventor</b>	Weiniu GAN et al.
<b>Group Art Unit</b>	1634
<b>Examiner Name</b>	J. Fredman
<b>Attorney Docket Number</b>	CL001165

**OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS**

Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		Kawasaki et al. "A Rap Guanine Nucleotide Exchange Factor Enriched Highly in Basal Ganglia." Proc. Natl. Acad. Sci. October 1998. Vol. 95, Pages 13278-13283. Clyde-Smith et al. "Characterization of RasGRP2, a Plasma Membrane-Targeted Dual Specifically Ras/Rap Exchange Factor." J. Biol. Chem. October 13, 2000. Vol. 275, No. 41, Pages 32260-32267. Kedra et al. "The Germinal Center Kinase Gene and a Novel CDC-25 Like Gene are Located in the Vicinity of the PYGM Gene on 11q13." Human Genet. 1997. Vol. 100, Pages 611-619.	
		Guru et al. "A Transcript Map for the 2.8 Mb Region Containing the Multiple Endocrine Neoplasia Type 1 Locus." Genome Research. 1997. Vol. 7, Pages 725-735.	
		International Search report dated May 22, 2003.	

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Weiniu GAN et al.

Art Unit: 1634

Serial No.: 09/805,455

Examiner: J. Fredman

Filed: March 14, 2001

Atty. Docket: CL001165

For: ISOLATED HUMAN RAS-LIKE PROTEINS, NUCLEIC  
ACID MOLECULES ENCODING HUMAN RAS-LIKE  
PROTEINS, AND USES THEREOF

**Statement Regarding Duty to Disclose Information Material To Patentability Under  
37 CFR 1.56 (a) and (b)**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Applicants hereby notify the US Patent and Trademark Office of the documents listed on the attached PTO Form SB/08A, which may be deemed relevant to the patentability of the claims of the above application. One copy of each of the listed documents is submitted herewith. The submission of the listed documents is not intended as an admission that any such document constitutes prior art against the claims of the present application.

The undersigned states that each item listed on the attached PTO Form SB/08A was first cited in a communication from a Foreign Patent Office in the above application's foreign counterpart or not known to the Undersigned for more than three months prior to the filing of this Information Disclosure Statement.

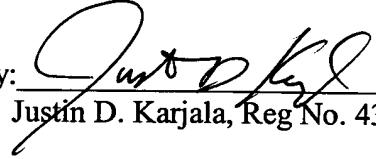
Please charge the fee set forth in §1.17(p) to deposit account number 50-0970.

Furthermore, the Office is authorized to charge any other necessary fees related to the processing of this application to Deposit Account No. 50-0970.

Respectfully submitted,

CELERA GENOMICS

By:

  
Justin D. Karjala, Reg No. 43,704

Date: June 10, 2003

Celera Genomics Corporation  
45 West Gude Drive, C2-4#21  
Rockville, MD 20850  
Tel: 240-453-3812  
Fax: 240-453-3084

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
 WAYNE W. MONTGOMERY  
 CELERA GENOMICS  
 45 WEST GUDE DRIVE C2-4#21  
 ROCKVILLE, MD 20850

**PCT**

NOTIFICATION OF TRANSMITTAL OF  
 THE INTERNATIONAL SEARCH REPORT  
 OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference <b>CL001165PCT</b>	Date of Mailing <i>(day/month/year)</i> <b>22 MAY 2003</b>
International application No. <b>PCT/US02/07159</b>	FOR FURTHER ACTION See paragraphs 1 and 4 below  International filing date <i>(day/month/year)</i> <b>08 March 2002 (08.03.2002)</b>
Applicant <b>PE CORPORATION</b>	

1.  The applicant is hereby notified that the international search report has been established and is transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

**Where?** Directly to the International Bureau of WIPO, 34, chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

**For more detailed instructions**, see the notes on the accompanying sheet.

2.  The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3.  With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90 bis.1 and 90 bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

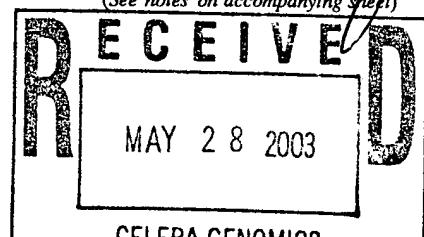
In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/US Commissioner for Patents Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer Jeffrey Friedman Telephone No. 703-308-0196
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Form PCT/ISA/220 (April 2002)

*(See notes on accompanying sheet)*



# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference CL001165PCT	<b>FOR FURTHER ACTION</b>	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/US02/07159	International filing date (day/month/year) 08 March 2002 (08.03.2002)	(Earliest) Priority Date (day/month/year) 14 March 2001 (14.03.2001)
Applicant PE CORPORATION		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the Report**

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

contained in the international application in written form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2.  Certain claims were found unsearchable (See Box I).

3.  Unity of invention is lacking (See Box II).

4. With regard to the title,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

5. With regard to the abstract,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. \_\_\_\_\_

as suggested by the applicant.

because the applicant failed to suggest a figure.

because this figure better characterizes the invention.



None of the figures

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US02/07159

**Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)**

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claim Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claim Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claim Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)**This International Searching Authority found multiple inventions in this international application, as follows:  
Please See Continuation Sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1, 2, 20, 21

Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US02/07159

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : C07K 13/00; C12N 9/00  
US CL : 530/350; 435/174

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 530/350; 435/174

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KAWASAKI et al. A Rap guanine nucleotide exchange factor enriched highly in basal ganglia. Proc. Natl. Acad. Sci. October 1998, Vol. 95, pages 13278-13283, see entire document.	1, 2, 20, 21
X	CLYDE-SMITH et al. Characterization of RasGRP2, a plasma membrane-targeted dual specificity ras/rap exchange factor. J. Biol. Chem. 13 October 2000, Vol. 275, No. 41, pages 32260-32267, see entire document.	1, 2, 20, 21
X	KEDRA et al. The germinal center kinase gene and a novel CDC-25 like gene are located in the vicinity of the PYGM gene on 11q13. Hum. Genet. 1997, Vol. 100, pages 611-619, see entire document.	1, 2, 20, 21
X	GURU et al. A transcript map for the 2.8 Mb region containing the multiple endocrine neoplasia type 1 locus. Genome Research. 1997, Vol. 7, pages 725-735, see entire document.	1, 2, 20, 21
X	WO 98/53601 A1 (THE COUNCIL OF THE QUEENSLAND INSTITUTE OF MEDICAL RESEARCH) 26 November 1998 (26.11.1998), see entire document.	1, 2, 20, 21



Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"E" earlier application or patent published on or after the international filing date

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"O" document referring to an oral disclosure, use, exhibition or other means

"&" document member of the same patent family

"P" document published prior to the international filing date but later than the priority date claimed

Date of the actual completion of the international search

16 April 2003 (16.04.2003)

Date of mailing of the international search report

22 MAY 2003

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

Jeffrey Fredman

Telephone No. 703-308-0196

**BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING**

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-2, 20, 21, drawn to polypeptides.

Group II, claim(s) 3, drawn to antibodies.

Group III, claim(s) 4-6, 8, 9, 22, 23, drawn to nucleic acids.

Group IV, claim(s) 7, drawn to transgenic animals.

Group V, claim(s) 10-11, drawn to methods of producing polypeptides.

Group VI, claim(s) 12, drawn to methods of detecting polypeptides

Group VII, claim(s) 13, drawn to methods of detecting nucleic acids.

Group VIII, claim(s) 14-16, 19, drawn to methods of identifying modulators of polypeptides.

Group IX, claim(s) 17, drawn to a pharmaceutical composition.

Group X, claim(s) 18, drawn to a method of treatment.

The inventions listed as Groups I-X do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: A special technical feature represents a novelty over the prior art. However, claim 1 is anticipated by Kawasaki et al (Proc. Natl. Acad. Sci. (1998) 95:13278-13283) who teaches an isolated polypeptide which comprises more than 10 contiguous amino acids of SEQ ID NO: 2 (see figure 1, panel D). Since there is no special technical feature linking the claims, the separation into groups is proper.

Further Groups I-IV and IX are drawn to multiple, distinct products lacking the same or corresponding special technical features. The nucleic acids of Group III are composed of nucleotides and function in, e.g., methods of nucleic acid hybridization or amplification. This group is directed to different combinations of nucleic acids which are different from one another and may be employed in different methods. The recombinant organisms of Group IV are complex organisms that are employed in, e.g. animal research methods. Such organisms cannot be employed as, e.g., probes or primers and they differ in both structure and function from the nucleic acids of Group III. The polypeptides of Group I differ in both structure and function from either the nucleic acids or the transgenic organisms. The polypeptides are composed of amino acids linked by peptide bonds and arranged in a complex combination of alpha helices, beta pleated sheets, hydrophobic and hydrophilic domains. The polypeptides also differ in function, e.g., fusion proteins with enzymatic functions. The antibodies of Group II are composed of amino acids linked by peptide bonds, antibodies are glycosylated and their tertiary structure is unique, where four subunits (2 light chains and 2 heavy chains) associated via disulfide bonds into a Y-shaped symmetric dimer. The antibodies function in immunoassays. Further the pharmaceutical of Group IX has an undefined structure which can include small molecules or other compounds not found in any of the other groups. As products of different sets of Groups differ from each other in structure, function, and effect, they do not belong to a recognized class of chemical compound, or have both a "common property or activity" and a common structure as would be required to show that the inventions are "of a similar nature".

**INTERNATIONAL SEARCH REPORT**

PCT/US02/07159

Further, the methods of Groups V-VIII and IX have different objectives and require different process steps. In addition to differences in objectives, effects, and method steps, it is again noted that the claims of the present Groups are not directed to the detection or identification of molecules having the same or common special technical feature, for the reasons discussed above.

**Continuation of B. FIELDS SEARCHED Item 3:**

EAST, MEDLINE, BIOSIS, CAPLUS

search terms: ras, protein, peptide, polypeptide

## NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under Article 19. The Notes are based on the requirements of the Patent Cooperation Treaty and of the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule" and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

### INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

The claims only.

The description and the drawings may only be amended during international preliminary examination under Chapter II.

When? Within 2 months from the date of transmission of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How? Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confounded with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : <b>C12N 15/12, C07K 14/47, 16/18, G01N 33/53</b>		A1	(11) International Publication Number: <b>WO 98/53061</b> (43) International Publication Date: 26 November 1998 (26.11.98)
(21) International Application Number: <b>PCT/AU98/00380</b>		(74) Agents: HUGHES, E., John, L. et al.; Davies Collison Cave, 1 Little Collins Street, Melbourne, VIC 3000 (AU).	
(22) International Filing Date: 22 May 1998 (22.05.98)		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).	
(30) Priority Data: PO 6972 23 May 1997 (23.05.97) AU PO 6973 23 May 1997 (23.05.97) AU PO 6974 23 May 1997 (23.05.97) AU PP 1458 22 January 1998 (22.01.98) AU PP 1459 22 January 1998 (22.01.98) AU PP 1460 22 January 1998 (22.01.98) AU		(71) Applicant (for all designated States except US): THE COUNCIL OF THE QUEENSLAND INSTITUTE OF MEDICAL RESEARCH [AU/AU]; 300 Herston Road, Brisbane, QLD 4029 (AU).	Published With international search report.
(72) Inventors; and (75) Inventors/Applicants (for US only): HAYWARD, Nicholas [AU/AU]; 13 Prince Street, Paddington, QLD 4064 (AU). SILINS, Ginters [AU/AU]; 35 Eppalong Street, The Gap, QLD 4061 (AU). GRIMMOND, Sean [AU/GB]; Medical Research Council, Harwell, Didcot, Oxfordshire OX11 ORD (GB). GARTSIDE, Michael [AU/AU]; 19 Thomas Street, Camp Hill, QLD 4152 (AU). HANCOCK, John [AU/AU]; 141 Airley Road, Pullenvale, QLD 4069 (AU).			

(54) Title: THREE NOVEL GENES ENCODING A ZINC FINGER PROTEIN, A GUANINE NUCLEOTIDE EXCHANGE FACTOR AND A HEAT SHOCK PROTEIN OR HEAT SHOCK BINDING PROTEIN

## (57) Abstract

The present invention relates generally to three novel human genes with gene regulatory function. These genes encode a zinc finger protein, a guanine nucleotide exchange protein and a heat shock protein or heat shock binding protein. The invention includes derivatives and mammalian animal, insect, nematodes, avian and microbial homologues of these genes. The present invention further provides pharmaceutical compositions and diagnostic agents as well as genetic molecules useful in gene replacement therapy and recombinant molecules useful in protein replacement therapy.

02/07/59  
602